newfoundland labrador hydro
a nalcor energy company

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August 14, 2015

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL
A1A 5B2

ATTENTION: Ms. Cheryl Blundon
Director of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: **An Application by Newfoundland and Labrador Hydro (Hydro) pursuant to Subsection 41(3) of the Act for the approval of the Replacement of Rectifier Transformers, Units 1 and 2, at the Holyrood Thermal Generating Station.**

Please find enclosed the original and 12 copies of the above-noted Application, plus supporting affidavit, project proposal, and draft order.

The proposed project involves the replacement of the rectifier transformers on Units 1 and 2 at the Holyrood Thermal Generating Station which is necessary for the supply of dependable and reliable power to the Island Interconnected System.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Tracey L. Pennell
Legal Counsel

TLP/bs

cc: Gerard Hayes – Newfoundland Power
Paul Coxworthy – Stewart McKelvey Stirling Scales
Sheryl Nisenbaum – Praxair Canada Inc.
Thomas Johnson – Consumer Advocate
Thomas J. O'Reilly, Q.C. – Cox & Palmer

IN THE MATTER OF the *Electrical Power Control Act,* RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*), and regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) pursuant to Subsection 41(3) of the *Act*, for approval of the Replacement of Rectifier Transformers, Units 1 and 2, at the Holyrood Thermal Generating Station.

TO: The Board of Commissioners of Public Utilities (the Board)

THE APPLICATION OF NEWFOUNDLAND AND LABRADOR HYDRO (Hydro) STATES THAT:

1. Hydro is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the Act and is subject to the provisions of the *Electrical Power Control Act, 1994.*

2. Hydro is the primary generator of electricity in Newfoundland and Labrador. As part of its generating assets, Hydro owns and operates the Holyrood Thermal Generating Station (Holyrood), which has three generating units with a combined generating capacity of 500 MW. Holyrood is an essential part of the Island Interconnected System and produces up to 40 percent of the Island's annual energy requirements.

3. Each generating unit at Holyrood has a rectifier transformer that is part of the excitation system which enables the conversion of mechanical energy into electrical energy. Without a rectifier transformer, a generating unit is unable to produce electricity. The rectifier transformers on Units 1 and 2 at Holyrood are original equipment and were installed in 1970. The failure of similar rectifier transformers on Unit 6 at Hydro's Bay d'Espoir generating station in January and February 2014 resulted in forced outages and

reduced generating capacity on the Island Interconnected System for six months while a replacement transformer was procured. In June 2014 and December 2014, condition assessments of the rectifier transformers in Holyrood were conducted and the results reviewed by an outside consultant, providing a condition assessment of the transformers. The assessment indicates that the rectifier transformers on Units 1 and 2 have reached the end of their useful service life and therefore are at risk for failure. If a failure of one, or both, of these rectifier transformers occurs, the generating units will be unable to produce electricity. In the event of catastrophic failure of the transformers, the rectifier transformers could present health and safety issues for personnel on site. As such, the rectifier transformers on Units 1 and 2 at Holyrood must be replaced as they are critical to the operation of Units 1 and 2 at Holyrood.

4. Hydro is recommending that the rectifier transformers on Units 1 and 2 at Holyrood be replaced. Details regarding Hydro's proposal to replace the rectifier transformers on Unit 1 and 2 at Holyrood are contained in the attached project proposal document.

5. The availability and reliability of Holyrood is critical to ensuring that adequate generating capability is maintained on the Island Interconnected System.

6. The estimated cost of this project is $756,200. The procurement of the new rectifier transformers will occur in the fall of 2015 with the intent of having these units on site during the winter of 2015/2016 in the event an unplanned failure occurs prior to replacement in 2016. The availability of these critical transformers will contribute significantly to the expedited return to service of the affected generating unit and the reinstatement of maximum generating capacity. As the replacement of each rectifying transformer will require a unit outage, the planned replacements of these transformers are scheduled to occur during a scheduled outage in the summer of 2016.

7. Hydro submits that the replacement of the rectifier transformers on Units 1 and 2 at Holyrood is necessary to ensure that the electrical system can continue to provide service which is safe and adequate and just and reasonable as required by Section 37 of the *Act*. An Engineering Report supporting this supplemental capital application is attached.

8. Hydro therefore makes Application for an Order pursuant to section 41(3) of the Act approving the replacement of the rectifier transformers on Units 1 and 2 at Holyrood at an estimated capital cost of $756,200 as set out in this Application and in the attached project description and justification document.

DATED at St. John's, in the Province of Newfoundland and Labrador, this 14th day of August, 2015.

Tracey Pennell

Tracey L. Pennell
Counsel for the Applicant
Newfoundland and Labrador Hydro
500 Columbus Drive P.O. Box 12400
St. John's,
Newfoundland and Labrador
A1B 4K7
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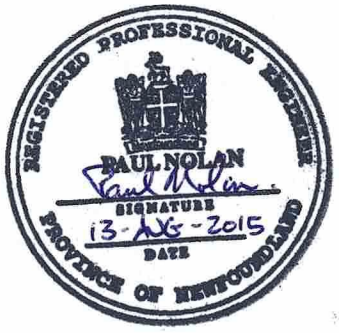
A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

	Electrical
	Mechanical
	Civil
	Protection & Control
	Transmission & Distribution
	Telecontrol
	System Planning

Replace Rectifier Transformers – Units 1 & 2

Holyrood Thermal Generating Station

August 13, 2015

newfoundland labrador hydro
a nalcor energy company

SUMMARY

The Holyrood Thermal Generating Station (Holyrood) powerhouse was constructed in two stages. Stage 1 was completed in 1970 and houses generating Units 1 and 2. Construction of the Stage 2 powerhouse extension followed in 1979 and contains generating Unit 3.

This proposal is requesting the approval of a two year project to replace the rectifier transformers on Units 1 and 2 at Holyrood. These units, which are filled with an insulating fluid, have been in service since the initial construction of Stage 1 and have reached the end of their service life. The estimated cost of this project is $756,200. The rectifier transformer on Unit 3 was installed in 1979, and is a dry-type transformer, and thus does not have an insulating fluid. There have been no issues identified with the Unit 3 rectifier transformer, and thus its replacement is not within the scope of this proposal.

Hydro requires that Holyrood continue to operate as a generating facility until the 2020/2021 time frame. Beyond 2020/2021, Unit 3 will remain vital to the Island Interconnected System and will continue to serve as a synchronous condenser[1] until 2041. To ensure the reliable generating functionality of Units 1 and 2 in the medium term, the proposed replacement of the rectifier transformers is required.

[1] A synchronous condenser is a device identical to a synchronous motor, whose shaft is not connected to anything but spins freely. Its purpose is not to convert electric power to mechanical power or vice versa, but to adjust conditions on the electric power transmission grid. Its field is controlled by a voltage regulator to either generate or absorb reactive power as needed to adjust the grid's voltage, or to improve power factor. The condenser's installation and operation are identical to large electric motors.

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1 INTRODUCTION

In this Capital Budget Supplemental Application, Newfoundland and Labrador Hydro (Hydro) proposes to address a risk with its ability to provide reliable generation from Units 1 and 2 in Holyrood. This risk became evident from a condition assessment of the rectifier transformers for these two units. This project will maintain the reliability of generating Units 1 and 2 by replacing transformers that condition based testing indicates are at the end of their useful life.

In January and February of 2014, the failure of similar units on Unit 6 (76.5 MW) at Hydro's Bay d'Espoir generating station resulted in forced outages and reduced generating capacity on the Island Interconnected System. The affected generating Unit 6 was out of service for approximately 6 months while a replacement transformer was procured under expedited terms.

Condition assessments of the rectifier transformers in Holyrood for Units 1 and 2 have been conducted, and the results indicate that they are at risk for failure and, in the event of a catastrophic failure, could present health and safety issues for personnel at this site. The rectifier transformers are critical to the operation of Units 1 and 2 at Holyrood.

2 PROJECT DESCRIPTION

The scope of this project is to replace the rectifier transformers on generating Units 1 and 2 at Holyrood. This includes the procurement, installation, testing and commissioning of the two transformers. The new transformers will be direct replacements designed to match the electrical and physical design of the existing units.

The procurement of the new rectifier transformers will be completed in the fall of 2015 with the intent of having these units on site during the winter of 2015/2016 in the event an unplanned failure occurs prior to the planned replacement.

The replacement of each rectifying transformer requires a unit outage, and it is intended to do this under a planned fashion. These outages will be coordinated with system operations. The replacements are scheduled for the summer of 2016 when the next planned outage will occur.

If a rectifier transformer failed prior to the planned replacement in summer 2016, the new rectifier transformer would be placed in service. This work would take place over an approximately two week period and the generating unit would then be returned to full service. Hydro is currently developing a plan to expedite the installation to minimize supply impacts in the unlikely event of a failure.

If a failure occurred and the rectifier transformer was not yet procured and on site, the generating unit would be at least 6 months out of service while a replacement transformer was procured and then installed.

3 JUSTIFICATION

The rectifier transformers on Units 1 and 2 in Holyrood have reached the end of their service lives.

In June of 2014 and December of 2014, fluid analysis was performed on the insulating fluid contained in the rectifier transformers for Units 1 and 2. The results were reviewed by an outside consultant in March of 2015. This assessment indicates "These transformers should be considered for near future replacement. The unknown impact of long term usage of Perc in the transformers, the uncertain condition of the transformer active part and the age of this equipment result in an increased risk scenario" (see Appendix A for the condition assessment). If a failure of the rectifier transformer occurs, the generating unit will be unable to generate to the Island Interconnected System.

3.1 Existing System

The rectifier transformers on Units 1 and 2 in Holyrood are original equipment installed in 1970. Each rectifier transformer is a part of the excitation system used to convert the generator terminal voltage to a lower voltage that is used to supply the rectifier. The excitation system is used to create a rotating magnetic field in the generator to enable conversion of mechanical energy into electrical energy. Without a rectifier transformer, a generating unit is not able to produce electricity.

These transformers were originally filled with Pyranol (100% PCB fluid) as the insulating/cooling fluid. In the early 1990s, a program to remove PCBs from these transformers was performed. This process involved draining the PCB oil and replacing it with a fluid called Transclene. Transclene is a trade name for a chemical called perchloroethylene. Transclene was the selected replacement fluid for the following reasons:

1. To extend the life of the transformers until the end of their design useful life (PCB equipment was replaced due to environmental regulations);

2. Transclene was able to leach PCB molecules from the PCB soaked wood and paper insulation inside the transformer;
3. Transclene is a transformer oil with similar insulating and heat transfer properties of Pyranol that could remain in service until the transformer is retired[2]; and
4. Transclene has superior flame retardant properties.

The chemical perchloroethylene is harmful to human health primarily from inhaling the chemical fumes. In high concentrations, or where ventilation is poor, perchloroethylene can cause respiratory distress and even death. Perchloroethylene has also been identified as a carcinogen. For this reason, when working with this fluid, workers must wear a chemical suit and self-contained breathing apparatus (SCBA) to prevent exposure. The chemical has to be stored and disposed of properly. As well, the chemical and transformer shell have to be disposed of as PCB waste given the presence of PCB from the original Pyranol fluid.

The rectifier transformers on Units 1 and 2 in Holyrood are shown in Figures 1 and 2.

[2] van Kooy Transformer Consulting Services Inc. have advised Hydro that utilizing Transclene is not appropriate as a long term insulating fluid: "It was never intended to leave the Perc in the transformer long term". See Appendix A.

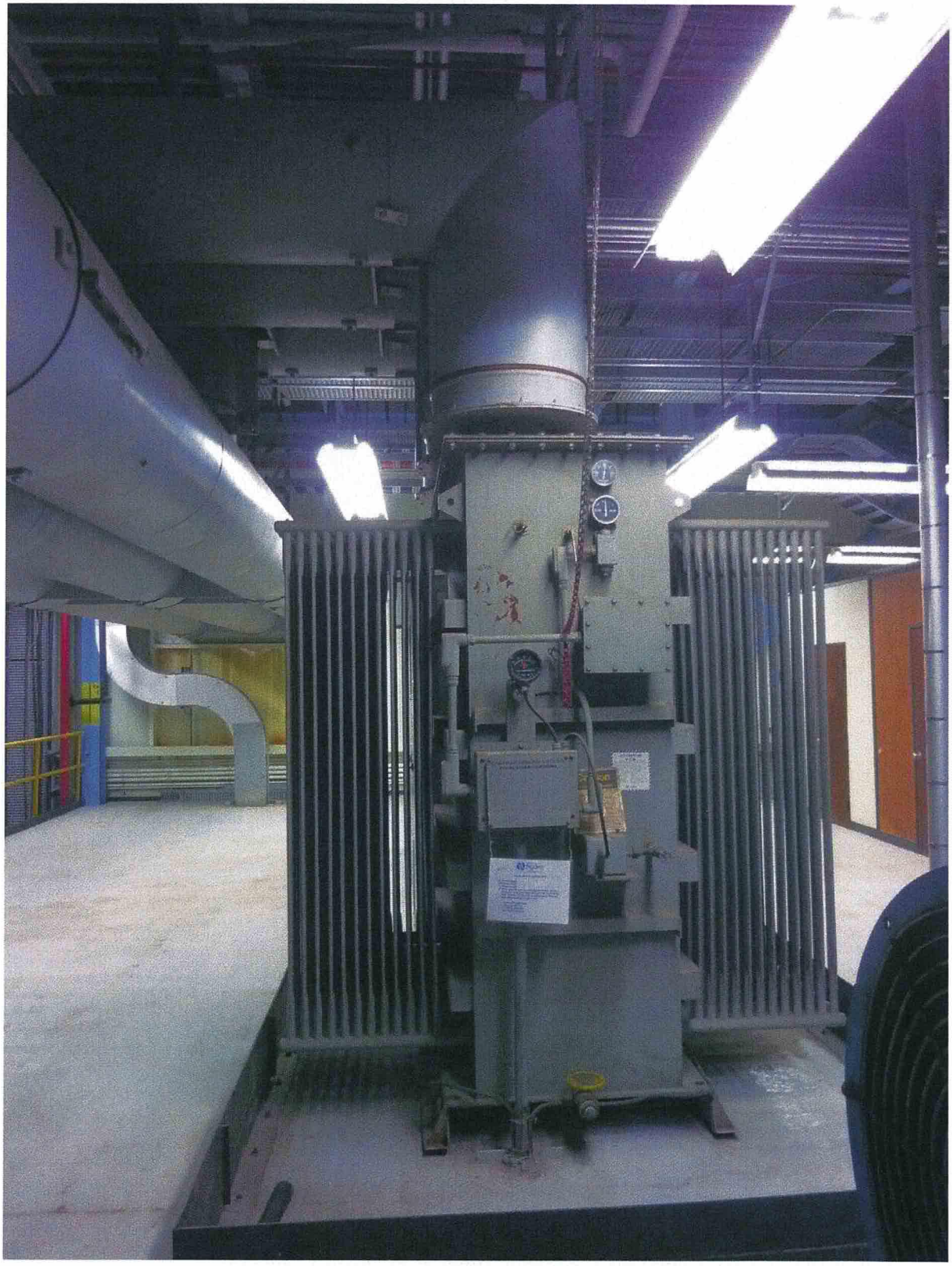

Figure 1: Holyrood Unit 1 Rectifier Transformer

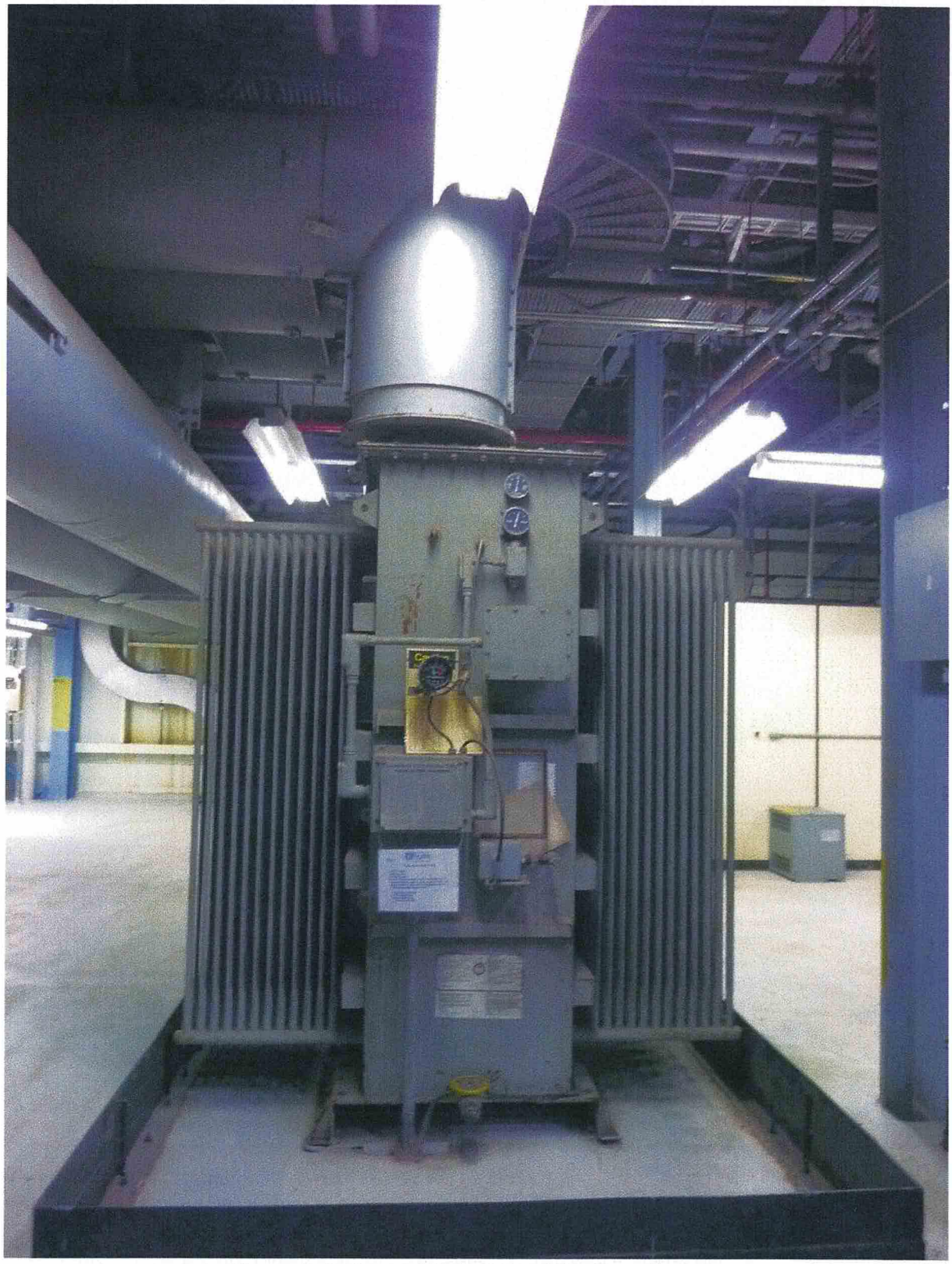

Figure 2: Holyrood Unit 2 Rectifier Transformer

3.2 Operating Experience

The Unit 1 and 2 rectifier transformers were originally insulated by Pyranol, or 100% PCB fluid. In the early 1990's, Pyranol was removed, and the transformers were flushed with perchloroethylene to reduce PCBs to below 50 ppm. At this point, the perchloroethylene was left in the transformer. It is known that Perchloroethylene is not an ideal long term insulating fluid, due to its propensity to absorb moisture which cannot be removed.

Considering transformer monitoring for these units, oil testing of perchloroethylene is limited to dielectric strength, water content, acid number, power factor and PCB content. Dissolved gas analysis, the key data for transformer condition assessment, cannot be carried out on perchloroethylene.

These transformers have not presented any reliability issues since the fluid change-out in the early 1990's, requiring only normal preventative maintenance.

3.2.1 Legislative or Regulatory Requirements

During the early 1990's, the Unit 1 and 2 rectifier transformers had their PCB content reduced to below 50 ppm, as per Environment Canada regulations. Fluid above 2 ppm PCBs cannot be reused.

3.2.2 Safety Performance

Perchloroethylene is considered harmful if swallowed, inhaled, or absorbed through skin. Exposure to perchloroethylene causes irritation to skin, eyes and respiratory tract, and affects the central nervous system, liver and kidneys. It is also suspected as a carcinogen.

3.2.3 Environmental Performance

Perchloroethylene is a known environmental contaminant, and must be disposed of appropriately.

3.2.4 Industry Experience

In early 2014, the rectifying transformer of Unit 6 in Bay d'Espoir failed, and the spare transformer was placed in service. This newly installed spare subsequently failed several weeks later. There was insufficient time to replace the spare transformer after the first failure, and therefore, Unit 6 was out of service for approximately 6 months until a replacement transformer was fabricated and installed.

The rectifier transformers in Bay d'Espoir are of the same vintage as the Holyrood Units 1 and 2 rectifier transformers. While analysis has shown that the transformers in Bay d'Espoir showed further degradation than those currently installed in Holyrood, the transformers at both sites were operated under similar conditions with the same insulating fluid. The failure at Bay d'Espoir further supports that the rectifier transformers in Holyrood are indeed reaching their end of useful life.

3.2.5 Maintenance or Support Arrangements

Maintenance on these assets is performed by Hydro personnel.

3.2.6 Maintenance History

The five-year maintenance history for these assets is shown in Table 1.

Table 1: Five-Year Maintenance History

Year	Preventive Maintenance ($000)	Corrective Maintenance ($000)	Total Maintenance ($000)
2014	11.7	0.0	11.7
2013	0.0	0.0	0.0
2012	0.0	0.0	0.0
2011	0.0	0.0	0.0
2010	0.0	0.0	0.0

Preventative maintenance includes fluid testing and electrical testing both transformers.

3.2.7 Anticipated Useful Life

Transformers have an anticipated service life of 45 years, and these two transformers will be 48 years in service in 2016.

3.3 Development of Alternatives

In order to ensure reliable generation at Holyrood, the following alternatives were considered:

- Direct replacement of transformers,
- Refurbishment by replacement of perchloroethylene and acid scavenger, and
- Refurbishment by replacement of perchloroethylene with silicone or vegetable oil.

3.4 Evaluation of Alternatives

Refilling with fresh perchloroethylene and an acid scavenger is not an acceptable option for three reasons. First, there are significant health and safety issues involved with handling these chemicals. Second, due to low demand in industry for this chemical, there are limited quantities available. Industrial chemical suppliers have largely removed perchloroethylene from inventories, as most equipment containing the fluid has been removed from service. Finally, as perchloroethylene was intended only to aid the removal of PCBs from the transformer and not for long-term use as an insulating fluid, it would not be acceptable to directly replace the perchloroethylene for continued use..

Refilling the rectifier transformers with silicone or vegetable is not recommended. In the condition assessment carried out by van Kooy Transformer Consulting Services, van Kooy states "One might be tempted to consider changing out the Perc now with Silicone or perhaps one of the Vegetable Oil dielectric fluids. I believe that this is a poor alternative due to the unknown effect of the long exposure to Perc and 46 years of service."[3]

[3] See Appendix A: Condition Assessment of Rectifier Transformers

Therefore, simply replacing the fluid does not address any potential transformer degradation that has developed over the life of the transformer and specifically since the perchloroethylene has been utilized as the insulating fluid.

For the reasons stated above, Hydro proposes to replace the rectifier transformers.

4 CONCLUSION

New rectifying transformers are required to be installed on Units 1 and 2 of the Holyrood generating units as soon as possible to ensure continued generation reliability on the Island Interconnected System. The existing units are beyond their expected life and there is a risk of failure.

Replacing these transformers through a supplementary capital project will reduce the risk of failure when the generation is required to meet customer demand.

The estimated cost to complete the work is $756,200.

4.1 Budget Estimate

The estimated cost to complete all work associated with replacing the excitation transformers for Holyrood Units 1 and 2 is $756,200[4]. Table 2 provides a detailed breakdown of the budgeted costs to be incurred to replace both rectifier transformers.

Table 2: Project Budget Estimate

Project Cost:*($ x1,000)*	**2015**	**2016**	**Beyond**	**Total**
Material Supply	2.0	10.0	0.0	12.0
Labour	93.0	135.6	0.0	228.6
Consultant	29.6	0.0	0.0	29.6
Contract Work	190.0	120.0	0.0	310.0
Other Direct Costs	12.0	0.0	0.0	12.0
Interest and Escalation	1.3	44.3	0.0	45.6
Contingency	0.0	118.4	0.0	118.4
TOTAL	**327.9**	**428.3**	**0.0**	**756.2**

[4] The rectifier transformer replacement project for Bay d'Espoir was estimated at $996,700 to replace 7 transformers. By comparison, the project to be completed at Holyrood is for larger transformers, and the project is more complicated (access, work location, etc.) than that at Bay d'Espoir and therefore, the estimate reflects the increased complexity and larger transformers.

4.2 Project Schedule

Hydro is submitting this project as a stand-alone project and not as part of the 2016 Capital Budget application. It is Hydro's intention to procure the transformers upon approval of this application and have the rectifier transformers on site as soon as possible, for winter season 2015/16, in the event that the failure of one of these transformers occurs prior to the planned replacement in 2016. Hydro is currently developing a plan to execute the replacement under both emergency conditions prior to a planned replacement, as well as under planned conditions. Further, this plan is being developed to appropriately manage the health risks of working with the insulating so that the work can be executed safely.

Hydro's experience with the unexpected failure of similar units at its Bay D'Espoir generating station indicates that it will take at least 6 months to procure a replacement transformer under expedited terms.

Hydro had considered applying for this project in the normal Capital Budget cycle, but upon more detailed review, deemed the failure risk appropriate for a supplemental project approval.

The anticipated project schedule is shown in Table 3.

Table 3: Project Schedule

Activity		Start Date	End Date
Planning	Scope, schedule, cost, risk, quality and communication planning.	August 2015	September 2015
Procurement	Detailed design / procurement of transformers	August 2015	September 2015
Design	Detailed design / planning of installation / storage of new transformers	September 2015	December 2015
Construction	Installation	May 2016	June 2016
Commissioning	Commissioning	June 2016	July 2016
Closeout	Project Closeout	August 2016	August 2016

APPENDIX A

Condition Assessment of Rectifier Transformers

van Kooy
Transformer Consulting Services Inc.

Ph. 905 308-9888
Email john@vankooy.com
web site www.vankooy.com

March 3, 2015

To: Jonathan Whelan, Newfoundland and Labrador Hydro

Subject: Transformer Condition Assessment
Rectifier Transformers
2154 kVA, LNAN (Pyranol), 55 °C Rise
Canadian General Electric S#'s 287157 & 287158
Built in 1969

Executive Summary

These transformers should be considered for near future replacement. The inappropriate Pyranol long term replacement fluid and the present PCB content in combination with their age put them at risk for failure and further, potential health and safety issues in the event of a catastrophic event.

General Background Information

The original dielectric/cooling fluid for these transformers was Pyranol which was the GE brand name for 100 % PCB fluid. When PCB's were banned, many transformers that were captive or difficult to remove underwent a 'decontamination' process to reduce the level of PCB to below 50 ppm.

This process involved draining the 100 % PCB fluid and replacing it with Perchloroethylene (dry cleaning fluid) aka Wecosol, Perclene, TDR-3. This fluid was then continuously cycled through the transformer drawing the PCB fluid from the cellulous insulation structures within the transformer. Since Perc had acceptable dielectric and cooling properties, this cycling process could be continued with the transformer energized in operation. After several months of cycling and removing the PCB from the Perc down to a level less than 50 ppm, the process was deemed completed.

At this point the Perc should have been drained and a recognized lower flash point fluid such as Silicone or RTEMP put in the transformer for the continued ongoing service life. It was never intended to leave the Perc in the transformer long term.

Perc is a poor long term transformer fluid because it easily absorbs moisture which cannot be removed, it is partially corrosive and destroys gaskets, and cannot be effectively monitored to determine the condition of the fluid and the internal components.

The rules for PCB have changed whereby fluids with a level of 2 ppm and above are considered contaminated.

van Kooy Transformer Consulting Services Inc.

Test Results Assessment

Unfortunately, but predictably, precious little data was available for review and assessment. Oil test laboratories will only reluctantly analysis Perc samples and typically can only provide the results of Dielectric Strength, Water Content, Acid Number, Power Factor and PCB content. Further, a hazardous waste disposal fee is charged. The key transformer condition assessment data, Dissolved Gas in Oil Analysis (DGA) is not possible with Perc.

Data from January 2015

S#	Dielectric Strength	Water Content	Acid Number	Power Factor @ 25 C	PCB Content
287157	43 kV	48 ppm	0.020	0.266	18 ppm
287158	55	31	0.010	0.184	28

I am not aware of any acceptance Oil Quality guidelines for Perc.

Leak detection is difficult with Perc. While other transformer fluids leave physical evidence of the leaking, Perc evaporates when exposed to air (contaminating the area environment).

Recommendations and Comments

These transformers should be considered for near future replacement. The unknown impact of long term usage of Perc in the transformers, the uncertain condition of the transformer active part and the age of this equipment result in an increased risk scenario.

One might be tempted to consider changing out the Perc now with Silicone or perhaps one of the Vegetable Oil dielectric fluids. I believe that this is a poor alternative due to the unknown effect of the long exposure to Perc and 46 years of service.

Care must be taken to effectively dispose of these transformers filled with PCB contaminated Perc.

Regards,

van Kooy Transformer Consulting Services Inc.

per: Sjoerd (John) van Kooy

IN THE MATTER OF the *Electrical Power Control Act,* RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*), and regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) pursuant to Subsection 41(3) of the Act, for approval of the Replacement of Rectifier Transformers, Units 1 and 2, at the Holyrood Thermal Generating Station.

AFFIDAVIT

I, Robert J. Henderson, Professional Engineer, of St. John's in the Province of Newfoundland and Labrador, make oath and say as follows:

1. I am Vice-President of Newfoundland and Labrador Hydro, the Applicant named in the attached Application.

2. I have read and understand the foregoing Application.

3. I have personal knowledge of the facts contained therein, except where otherwise indicated, and they are true to the best of my knowledge, information and belief.

SWORN at St. John's in the Province of Newfoundland and Labrador this 14th day of August 2015, before me:)

Tracey Pennell
Barrister - Newfoundland and Labrador

R. J. Henderson
Robert J. Henderson

(DRAFT ORDER)
NEWFOUNDLAND AND LABRADOR
BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

AN ORDER OF THE BOARD

NO. P.U. __ (2015)

IN THE MATTER OF the *Electrical Power Control Act,* RSNL 1994, Chapter E-5.1 (the *EPCA*) and the *Public Utilities Act*, RSNL 1990, Chapter P-47 (the *Act*), and regulations thereunder;

AND IN THE MATTER OF an Application by Newfoundland and Labrador Hydro (Hydro) pursuant to Subsection 41(3) of the *Act*, for approval of the Replacement of Rectifier Transformers, Units 1 and 2, at the Holyrood Thermal Generating Station.

WHEREAS Newfoundland and Labrador Hydro ("Hydro") is a corporation continued and existing under the *Hydro Corporation Act, 2007*, is a public utility within the meaning of the Act, and is subject to the provisions of the *EPCA;* and

WHEREAS Subsection 41(3) of the Act requires that a public utility not proceed with the construction, purchase or lease of improvements or additions to its property where:

a) the cost of construction or purchase is in excess of $50,000; or
b) the cost of the lease is in excess of $5,000 in a year of the lease,

without prior approval of the Board; and

WHEREAS in Order No. P.U. 50 (2014) the Board approved Hydro's 2015 Capital Budget in the amount of $76,832,900; and

WHEREAS in Order No. P.U. 24(2015) the Board approved the supplementary 2014 capital expenditure in the amount of $1,536,300 to purchase critical spares for Hydro's Generating Stations; and

WHEREAS on August 13, 2015, Hydro applied to the Board for approval to replace the rectifier transformers on Units 1 and 2 at the Holyrood Thermal Generating Station; and

WHEREAS the Board is satisfied that the 2015 supplemental capital expenditure for the approval to replace the rectifier transformers on Units 1 and 2 at the Holyrood Thermal Generating Station is necessary to allow Hydro to provide service and facilities which are reasonably safe and adequate and just and reasonable.

IT IS THEREFORE ORDERED THAT:

1. The proposed capital expenditure of $756,200 to replace the rectifier transformers on Units 1 and 2 at the Holyrood Thermal Generating Station is approved.

2. Hydro shall pay all expenses of the Board arising from this Application.

DATED at St. John's, Newfoundland and Labrador, this day of , .

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_____

_____ _____